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Patent
Attorney's Docket No. 027500-690

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Patent Application of) **HAND CARRY**
)
U.S. Patent No. 5,088,108) Group Art Unit: 2732
UDDENFELDT et al.)
)
Serial No.: 08/136,760) Examiner: H. Kizou
)
Filed: October 15, 1993)
)
For: CELLULAR DIGITAL MOBILE)
RADIO SYSTEM AND METHOD)
OF TRANSMITTING INFORMATION)
IN A DIGITAL CELLULAR)
MOBILE RADIO SYSTEM)

Received
MAY 12 1998
Group 2700

SUPPLEMENTAL NOTICE REGARDING LITIGATION

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

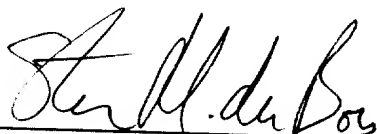
Further to the Notice Regarding Litigation filed on September 4, 1997, the enclosed papers are being submitted to supplement that filing and to address the Protestor's "allegation" that the undersigned has not fully complied with Applicants' duty of disclosure. The documents referred to within these papers are being filed concurrently herewith in an Information Disclosure Statement.

Reissue Patent Application of U.S. Patent No. 5,088,108
Attorney's Docket No. 027500-690

No fees are believed to be due by submission of this document. If, however, fees are needed the Commissioner is hereby authorized to charge any such fees to Deposit Account No. 02-4800. This paper is submitted in triplicate.

Respectfully submitted,

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Date: May 12, 1998

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
DALLAS DIVISION**

ERICSSON INC. and TELEFONAKTIEBOLAGET
LM ERICSSON,

Plaintiffs,

v.

QUALCOMM PERSONAL ELECTRONICS,

Defendant.

No. 3-96CV3373-P

**QUALCOMM PERSONAL ELECTRONICS' SECOND SUPPLEMENTAL RESPONSE
TO PLAINTIFFS' FIRST SET OF INTERROGATORIES**

Pursuant to Federal Rule of Civil Procedure 33 and in compliance with Magistrate Judge Kaplan's March 2, 1998 order, Defendant Qualcomm Personal Electronics ("QPE") provides these supplemental responses to the First Set of Interrogatories served by plaintiff Ericsson Inc. and Telefonaktiebolaget LM Ericsson (collectively "Ericsson"). In supplementing its responses to these interrogatories, QPE incorporates by reference the General Objections it raised to these interrogatories in its initial responses dated May 14, 1997.

INTERROGATORY NO. 1:

For each of the Ericsson Patents in Suit which Qualcomm alleges in Paragraphs 10-14 of its Answer (Restated) that Qualcomm does not infringe, apply on an element-by-element and limitation-by-limitation basis, each Ericsson Claim against each Qualcomm IS-95 compliant product or process to indicate which claim elements or limitations Qualcomm concedes are found in the product or process and which claim elements or limitations are missing, and state each and every fact supporting that contention.

SECOND SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 1:

In addition to the General Objections, QPE objects to this interrogatory on the grounds that it is overbroad, unduly burdensome and premature. Ericsson has only identified one claim from each patent as allegedly infringed by QPE. Moreover, United States Patent Nos. 5,088,108, 5,109,528 and 5,327,577 have been resubmitted by Ericsson to the Patent and Trademark Office for reissue, and what claims, if any, will be finally issued from those reissue applications are currently unknown. In addition, this interrogatory needlessly requires QPE to address products and patent claims which Ericsson has not placed in issue. Moreover, the analyses sought by Interrogatory No. 1 are tentative and incomplete in that such analyses are not able to take into consideration either the final claim interpretations by the Court, or even the alleged claim interpretations by Ericsson due to Ericsson's refusal to furnish such claim interpretations.

Subject to QPE's general and specific objections, and subject to QPE's reservation of the right to supplement and modify its responses as additional information and analysis is conducted, QPE will provide tentative analyses with respect to those claims which Ericsson has expressly identified in its responses to QPE's first set of interrogatories, and with respect to those products identified by QPE in Paragraphs 16 and 17 of the General Objections stated in QPE's Responses to Plaintiffs' First Set of Interrogatories, namely QPE products QCP-800, QCP-1900, QCP-820, QCP-1920 and QCP-2700 (collectively "QPE Accused Products"). QPE reserves the right to supplement this response as additional information, including discovery which Ericsson has failed to provide, is received.

Subject to the foregoing, QPE incorporates its prior responses and supplements its responses as follows:

Patent 5,088,108 (Claim 1)

QPE does not infringe the claim 1 of the '108 patent because none of the QPE Accused Products is a "base station," "mobile station" or a "cellular mobile radio system" of the type required by claim 1 of the '108 patent. Moreover, QPE does not make, use or sell base station equipment and hence cannot practice the elements of claim 1 of the '108 patent that require base station transmitters. Rather, the QPE Accused Products are handsets generally compliant with the IS-95 standard, which is incorporated herein by reference. In addition, none of the QPE Accused Products operate in a "cellular mobile radio system" of the type required by this claim. This is at least because none of the QPE Accused Products function within a mobile radio system having "associated" cells and base stations such that "at least two base station transmitters are assigned to each of predetermined cells within a limited geographic area" as required by the claim. Rather, the QPE Accused Products practice CDMA technology in systems generally compliant with the IS-95 standard, which makes no such "assignment."

None of the QPE Accused Products have "means for reconstructing the digital modulation from corresponding radio signals received within a predetermined reception time interval," allegedly disclosed by the '108 patent as none of the QPE Accused products have the equalizers allegedly disclosed by the '108 patent. None of the QPE Accused Products operate in a system in which two base stations send "segments of digitally modulated radio signals virtually simultaneously and within the same frequency range with identical message information" as required by the claim. This is at least because none of the QPE Accused Products receive substantially the same message information from more than one base station during the time required by the claim. Instead, the QPE Accused Products practice CDMA technology in

systems generally compliant with the IS-95 standard. In such systems, no two base stations send "substantially the same message information" to a single handset.

None of the QPE Accused Products operate in a system in which base station transmitters send signals "having modulation time intervals which are shorter than the time required for radio signals to propagate a distance which is as long as a greatest transmitting distance between two base station transmitters assigned to one cell within said geographic area" as required by the claim. This is at least because no such transmitting distance exists in any system in which the QPE Accused Products operate, because no two base station transmitters are "assigned" to a cell in such systems. Moreover, the QPE Accused Products practice CDMA technology.

None of the QPE Accused products have "reconstructing means associated with each of said receivers in said plurality of mobile stations [operating] to reconstruct digital modulation of corresponding radio signals received during a reception time interval which is at least as long as a time required for radio signals to propagate a distance which is as long as said greatest transmitting distance" as required by the claim. This is at least because no such transmitting distance exists in any system in which the QPE Accused Products operate. In addition, none of the QPE Accused products have the equalizers allegedly disclosed by the '108 patent. Rather, the QPE Accused Products practice CDMA technology in systems generally compliant with the IS-95 standard.

The factual bases for QPE's responses are further set forth in the documents already produced to Ericsson in this case that describe the operation of the QPE Accused Products.

Patent No. 5,109,528 (Claim 4)

None of the QPE Accused Products can be used "[i]n a mobile radio communication system comprising base stations and mobile stations having radio transmitters and radio receivers

for transmitting control information and message information therebetween" of the type required by claim 4 of the '528 patent. This is at least because none of the QPE Accused Products is a "base station," "mobile station" or a "cellular mobile radio system" of the type required by this claim. Moreover, QPE does not make, use or sell base station equipment and hence cannot practice the elements of claim 4 of the '528 patent that require base station transmitters. Rather, the QPE Accused Products are handsets generally compliant with the IS-95 standard, which is incorporated herein by reference. Furthermore, the QPE Accused Products do not use the equalizers allegedly disclosed by the '528 patent.

None of the QPE Accused Products practice "a method for handing over the responsibility for transmitting message information to a mobile station from at least one first base station transmitter to at least one second base station transmitter" of the type required by the claim. This is at least because none of the QPE Accused Products are "base stations" "mobile stations" or "systems" as required by the claim. In addition, none of the QPE Accused Products receive substantially the same message information from two base stations during the required time period. Instead, the QPE Accused Products practice CDMA technology in systems generally compliant with the IS-95 standard. In such systems, no two base stations send "substantially the same message information" to a single handset.

The factual bases for QPE's responses are further set forth in the documents already produced to Ericsson in this case that describe the operation of the QPE Accused Products.

Patent 5,327,577 (Claim 7)

None of the QPE Accused Products can be used "in a cellular mobile radio system having a plurality of base station transmitters and mobile stations" of the type required by claim 7 of the '577 patent. This is at least because none of the QPE Accused Products is a "base station,"

"mobile station" or a "cellular mobile radio system" of the type required by this claim. Moreover, QPE does not make, use or sell base station equipment and hence cannot practice the elements of claim 7 of the '577 patent that require base station transmitters. Rather, the QPE Accused Products are handsets generally compliant with the IS-95 standard, which is incorporated herein by reference. Furthermore, the QPE Accused Products do not use the equalizers allegedly disclosed by the '577 patent.

In addition, none of the QPE Accused Products practice a "method of communication in a cellular mobile radio system" of the type required by claim. This is at least because none of the QPE Accused Products receive substantially the same message information from more than one base station during the time required by the claim. Instead, the QPE Accused Products practice CDMA technology in systems generally compliant with the IS-95 standard. In such systems, no two base stations send "substantially the same message information" to a single handset.

The factual bases for QPE's responses are further set forth in the documents already produced to Ericsson in this case that describe the operation of the QPE Accused Products.

All Patents

QPE will supplement its response to Interrogatory No. 1 as additional analyses are carried out and completed that demonstrate the absence of additional claim elements for the claims currently asserted by Ericsson.

INTERROGATORY NO. 2:

For each claim element of Interrogatory No. 1 which Qualcomm contends is missing from Qualcomm's relevant products and processes, state each and every fact supporting Qualcomm's contention that Qualcomm's structure or step found in each Qualcomm IS-95

compliant product or process does not satisfy every claim element or limitation literally and is not equivalent to that claim element under the Doctrine of Equivalents.

SECOND SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 2:

In addition to the General Objections, QPE objects to this interrogatory on the grounds that it is overbroad, unduly burdensome and premature. Ericsson has only identified one claim from each patent as allegedly infringed by QPE. Moreover, United States Patent Nos. 5,088,108, 5,109,528 and 5,327,577 have been resubmitted by Ericsson to the Patent and Trademark Office for reissue, and what claims, if any, will be finally issued from those reissue applications are currently unknown. In addition, this interrogatory needlessly requires QPE to address products and patent claims which Ericsson has not placed in issue. Moreover, the analyses sought by Interrogatory Nos. 1 and 2 are tentative and incomplete in that such analyses are not able to take into consideration either the final claim interpretations by the Court, or even the alleged claim interpretations by Ericsson due to Ericsson's refusal to furnish such claim interpretations.

Subject to QPE's general and specific objections, and subject to QPE's reservation of the right to supplement and modify its responses as additional information and analysis is conducted, QPE will provide tentative analyses with respect to those claims which Ericsson has expressly identified in its responses to QPE's first set of interrogatories, and with respect to those products identified by QPE in Paragraphs 16 and 17 of the General Objections stated in QPE's Responses to Plaintiffs' First Set of Interrogatories, namely the QPE Accused Products. QPE reserves the right to supplement this response as additional information, including discovery which Ericsson has failed to provide, is received.

Subject to the foregoing, QPE incorporates its prior responses and supplements its responses as follows:

QPE incorporates by reference all of its responses to Interrogatory No. 4 and incorporates by reference its Second Supplemental response to Interrogatory No. 1. In light of those two responses, it is clear that Ericsson cannot assert a claim scope that reads on the QPE Accused Products unless entire claim elements are ignored, the prosecution history is ignored, and the validity of the claims is ignored. QPE will not engage in such speculation as it would be unduly burdensome to perform such speculation. Moreover, in light of the absence of entire claim elements in the QPE Accused Products, QPE cannot infringe the Ericsson patents-in-suit under the doctrine of equivalents since the doctrine of equivalents cannot operate to eliminate claim elements in their entirety. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 117 S. Ct. 1040, 1048-49, 1050 (1997). Furthermore, as detailed in the thousands of documents produced by QPE in this case (and the thousands of documents produced by Qualcomm in the Marshall litigation), QPE's CDMA technology performs substantially different functions in substantially different ways to achieve substantially different results compared to the processes and devices claimed in the Ericsson patents-in-suit. Accordingly, the QPE Accused Products cannot infringe under the doctrine of equivalents. See *Engel Indus., Inc. v. Lockformer Co.*, 96 F.3d 1398, 1408 (Fed. Cir. 1996).

QPE will supplement its response to Interrogatory No. 2 as additional analyses are carried out and completed that demonstrate the absence of additional claim elements for the claims currently asserted by Ericsson.

INTERROGATORY NO. 3:

For each claim of each of the Ericsson Patents in Suit which Qualcomm contends is invalid under 35 U.S.C. §§ 101, 102, or 112, as pleaded in part by Qualcomm in Paragraph 15 of its Answer (Restated) and Paragraph 4 of Qualcomm's Amended Declaratory Judgment

Counterclaim, state each and every fact supporting the grounds for such pleadings and identify all prior art supporting these contentions.

SECOND SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 3:

In addition to QPE's General Objections, QPE objects to this interrogatory on the grounds that it is overbroad and unduly burdensome. Ericsson to date has identified only one claim of each patent in suit as allegedly infringed by QPE. Thus, this interrogatory needlessly requires QPE to address a large number of claims that Ericsson has not placed in issue. Moreover, the information sought by this interrogatory is premature. This is because, *inter alia*, the validity or invalidity of a patent claim or element of a claim depends upon the interpretation that is afforded such claim or claim element. Thus, the invalidity analyses sought are tentative and incomplete in that they do not have the benefit of the final claim interpretations by the Court or the benefit of Ericsson's alleged claim interpretations due to Ericsson's refusal to furnish such interpretations. Furthermore, Ericsson has failed to produce evidence of conception of the alleged inventions or evidence of diligence in reducing the alleged inventions to practice. Consequently, without such production, QPE cannot at present fix the dates which are relevant in determining the scope and content of the prior art—a necessary prerequisite for establishing invalidity under certain provisions of section 102. In addition, QPE's validity investigations are ongoing and QPE is continuing to receive and evaluate additional prior art that may be relevant to the invalidity or unenforceability of the patent claims in issue. Finally, QPE's ability to establish its best mode defenses under section 112 are dependent on Ericsson's compliance with orders compelling Ericsson to produce its CDMA and TDMA source code—orders that Ericsson is refusing to comply with while such orders are being appealed.

Subject to QPE's general and specific objections, and subject to QPE's reservation of the right to supplement and modify its responses as additional information and analysis is conducted, QPE will provide such information responsive to this interrogatory as has been tentatively determined to date, with respect to those claims which Ericsson has expressly identified in its responses to QPE's first set of interrogatories. Accordingly, QPE reserves the right to add additional invalidity arguments, whether based on prior art or based on the failure of the patents to comply with section 112, should Ericsson identify additional claims allegedly infringed by the QPE Accused Products. Based upon information currently available, QPE incorporates its prior responses and supplements its responses as follows:

Patent 5,109,528 (Claim 4) and Patent 5,327,577 (Claim 7):

Under a proper claim interpretation, the QPE Accused Products do not infringe the '528 or '577 patents. Indeed, as properly construed, the '528 and '577 claims do not read on the QPE Accused Products, the IS-95 standard, or any CDMA method or system, as discussed in QPE's responses to Interrogatory No. 1. Should the Court adopt QPE's claim interpretation, QPE need not go forward with its invalidity allegations.

QPE's invalidity counterclaims and defenses, like QPE's noninfringement defenses, necessarily depend on the scope of the claims. Depending upon the claim construction adopted by the Court, the claims will be either (1) not infringed, (2) invalid, or (3) both. In all likelihood, QPE will not be required to demonstrate that the claims are invalid if the Court has already held that QPE does not infringe. Thus, if the Court determines the proper scope of the claims *before* it addresses validity, the Court may not need to consider QPE's invalidity defenses.

As of the date of these responses, QPE and Qualcomm (in a parallel, first-filed action in Marshall, Texas) have asked Ericsson to explain its claim interpretation so that QPE and

Qualcomm may understand Ericsson's allegations, focus on the areas of disagreement, and refine and narrow the noninfringement and invalidity disputes. Unfortunately, Ericsson has refused to explain what its duplicative lawsuits are about, in spite Court orders compelling it do so in the Marshall litigation.

As a consequence, QPE must necessarily guess at Ericsson's claim interpretation in order to respond to this interrogatory. QPE therefore reiterates its general objection that it is unduly burdensome to require QPE to apply the prior art against a claim interpretation that Ericsson refuses to disclose. Notwithstanding the foregoing, QPE's invalidity defenses were plead in good faith and based upon prior art, which QPE has already disclosed to Ericsson and which would support an invalidity defense against apparent claim interpretations Ericsson might propose. QPE has already specifically identified the following prior art as supporting its invalidity defenses regarding claim 4 of the '528 patent and claim 7 of the '577 patent: U.S. Patent Nos. 4,596,042, 4,697,260, 4,718,081, 4,723,266, 4,737,978, 4,759,051 and 4,955,082, as well as Japanese Patent Abstract, Vol. 9, No. 169 (E-328), EPO Application No. 0274857, and two articles by Berhardt entitled "User Access in Portable Radio Systems" and "RF Performance of Macroscopic Diversity in Universal Digital Portable Radio Communications." Although QPE cannot provide a detailed analysis until Ericsson provides its claim construction, QPE believes that this prior art discloses systems that expressly or inherently practice the claims that Ericsson is now attempting to assert against QPE. In addition, QPE identifies the following prior art supporting invalidity defenses to the unknown, but apparently broad, claim construction that Ericsson may espouse: U.S. Patent Nos. 4,112,257, 4,698,839 and 4,856,048, and two articles by Nakajima et al. entitled "Advanced Mobile Communication Network Based on Signaling System No. 7."

This additional prior art discloses, either expressly or inherently, systems in which multiple base stations transmit to a single mobile station. Once Ericsson commits to a claim interpretation, QPE will supplement its analysis and will then provide a more detailed explanation of how Ericsson's interpretation would render the claims invalid in light of this prior art. In addition, once Ericsson commits to a claim interpretation, QPE may be able to identify additional prior art that invalidates the claims, at least as Ericsson construes them.

Finally, nothing in the specification or drawings supports Ericsson's apparent interpretation that the claims cover spread spectrum technology, much less code-division multiple access ("CDMA") technology. QPE has scrutinized the specification and drawings and is unable to find any disclosure whatsoever supporting Ericsson's apparent interpretation or mentioning CDMA systems and methods. Thus, to the extent that Ericsson is successful in convincing the Court that the claims should be interpreted as covering CDMA systems, the written description appears to be inadequate under section 112 since there is no written description of a method for practicing CDMA or spread spectrum technology. Furthermore, Ericsson's undisclosed, but apparently broad interpretation would render the claims invalid under section 112 for failure to claim what the applicant regards as his invention.

Patent 5,088,108 (Claim 1)

Under a proper claim interpretation, the QPE Accused Products do not infringe the '108 patent. Indeed, as properly construed, the '108 claims do not read on the QPE Accused Products, the IS-95 standard, or any CDMA method or system, as discussed in QPE's responses to Interrogatory No. 1. Should the Court adopt QPE's claim interpretation, QPE need not go forward with its invalidity allegations.

As of the date of these responses, QPE and Qualcomm (in a parallel, first-filed action in Marshall, Texas) have asked Ericsson to explain its claim interpretation so that QPE and Qualcomm may understand Ericsson's allegations, focus on the areas of disagreement, and refine and narrow the noninfringement and invalidity disputes. Unfortunately, Ericsson has refused to explain what its duplicative lawsuits are about, in spite Court orders compelling it do so in the Marshall litigation.

As a consequence, QPE must necessarily guess at Ericsson's claim interpretation in order to respond to this interrogatory. QPE therefore reiterates its general objection that it is unduly burdensome to require QPE to apply the prior art against a claim interpretation that Ericsson refuses to disclose. Notwithstanding the foregoing, QPE's invalidity defenses were plead in good faith and based upon prior art, which QPE has already disclosed to Ericsson and which would support an invalidity defense against apparent claim interpretations Ericsson might propose. QPE has already specifically identified the following prior art as supporting its invalidity defenses regarding claim 1 of the '108 patent: U.S. Patent Nos. 4,097,804, 4,255,814, 4,383,332, 4,516,267, 4,675,863, 4,696,051, 4,696,052, 4,718,109, 4,759,051, as well as EPO Application Nos. 40731, 72479, 72984, 274857, FRG Application No. 3022425, and Articles by Raith, Heynisch, Stjernall, and Heft cited in QPE's supplemental responses. Although QPE cannot provide a detailed analysis until Ericsson provides its claim construction, QPE believes that this prior art discloses systems that expressly or inherently practice the claim that Ericsson is now attempting to assert against QPE. In addition, QPE identifies the following prior art supporting invalidity defenses to the unknown, but apparently broad, claim construction Ericsson may espouse: U.S. Patent Nos. 4,097,804, 4,383,332, 4,852,090, and 4,490,830.

This additional prior art discloses, either expressly or inherently, multipath signal reception and equalization in cellular systems. Once Ericsson commits to a claim interpretation, QPE will supplement its analysis and will then provide a more detailed explanation of how Ericsson's interpretation would render the asserted claim invalid in light of this prior art. In addition, once Ericsson commits to a claim interpretation, QPE may be able to identify additional prior art that invalidates the claim, at least as Ericsson construes it.

Finally, nothing in the specification or drawings supports Ericsson's apparent interpretation that the claims of the '108 patent cover spread spectrum technology, much less code-division multiple access ("CDMA") technology. QPE has scrutinized the specification and drawings and is unable to find any disclosure whatsoever supporting Ericsson's apparent interpretation or mentioning CDMA systems and methods. Thus, to the extent that Ericsson is successful in convincing the Court that the claims should be interpreted as covering CDMA systems, the written description of the '108 patent appears to be inadequate under section 112 since there is no written description of a method for practicing CDMA or spread spectrum technology. Furthermore, Ericsson's undisclosed, but apparently broad interpretation would render the claims invalid under section 112 for failure to claim what the applicant regards as his invention.

Patent 5,148,485 (Claim 62)

Under a proper claim interpretation, the QPE Accused Products do not infringe claim 62 of the '485 patent, as discussed in QPE's responses to Interrogatory No. 1. Should the Court adopt QPE's claim interpretation, QPE need not go forward with its invalidity allegations.

As of the date of these responses, QPE and Qualcomm (in a parallel, first-filed action in Marshall, Texas) have asked Ericsson to explain its claim interpretation so that QPE and

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
DALLAS DIVISION**

ERICSSON INC. and TELEFONAKTIEBOLAGET)	
LM ERICSSON,)	
)	
Plaintiffs,)	No. 3-96CV3373-P
)	
v.)	
)	
QUALCOMM PERSONAL ELECTRONICS,)	
)	
Defendant.)	

**QUALCOMM PERSONAL ELECTRONICS' SUPPLEMENTAL RESPONSES
TO PLAINTIFFS' FIRST SET OF INTERROGATORIES (NOS. 1-4)**

Pursuant to Federal Rule of Civil Procedure 33 and in compliance with Magistrate Judge Kaplan's March 2, 1998 order, Defendant Qualcomm Personal Electronics ("QPE") provides these supplemental responses to the First Set of Interrogatories served by plaintiffs Ericsson Inc. and Telefonaktiebolaget LM Ericsson (collectively "Ericsson"). In supplementing its responses to these interrogatories, QPE incorporates by reference the General Objections it raised to these interrogatories in its initial responses dated May 14, 1997.

INTERROGATORY NO. 1:

For each of the Ericsson Patents in Suit which Qualcomm¹ alleges in Paragraphs 10-14 of its Answer (Restated) that QPE does not infringe, apply on an element-by-element and limitation-by-limitation basis, each Ericsson Claim against each QPE IS-95 compliant product or process to indicate which claim elements or limitations QPE concedes are found in the product

¹ All of these Interrogatories are addressed to Qualcomm and Qualcomm's products. As Ericsson is fully aware, Qualcomm is not a party to this litigation. QPE will answer this and all other interrogatories with regard to QPE and QPE's products, not Qualcomm and its products.

or process and which claim elements or limitations are missing, and state each and every fact supporting that contention.

SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 1:

In addition to the General Objections, QPE objects to this interrogatory on the grounds that it is overbroad, unduly burdensome and premature. Ericsson has only identified one claim from each patent as allegedly infringed by QPE. Moreover, United States Patent Nos. 5,088,108, 5,109,528 and 5,327,577 have been resubmitted by Ericsson to the Patent and Trademark Office for reissue, and what claims, if any, will be finally issued from those reissue applications are currently unknown. In addition, this interrogatory needlessly requires QPE to address products and patent claims which Ericsson has not placed in issue. Moreover, the analyses sought by Interrogatory No. 1 are tentative and incomplete in that such analyses are not able to take into consideration either the final claim interpretations by the Court, or even the alleged claim interpretations by Ericsson due to Ericsson's refusal to furnish such claim interpretations.

Subject to QPE's general and specific objections, and subject to QPE's reservation of the right to supplement and modify its responses as additional information and analysis is conducted, QPE will provide tentative analyses with respect to those claims which Ericsson has expressly identified in its responses to QPE's first set of interrogatories, and with respect to those products identified by QPE in Paragraphs 16 and 17 of the General Objections stated in QPE's Responses to Plaintiffs' First Set of Interrogatories, namely QPE products QCP-800, QCF-1900, QCP-820, QCP-1920 and QCP-2700 (collectively "QPE Accused Products"). QPE reserves the right to supplement this response as additional information, including discovery which Ericsson has failed to provide, is received.

Patent 5,088,108 (Claim 1)

1. QPE does not infringe the claim 1 of the '108 patent because none of the QPE Accused Products satisfies the requirement of:

A cellular mobile radio system comprising a plurality of mobile stations which are movable within and between a plurality of cells and a plurality of associated base stations assigned to said cells for digital transmission of message information.

This limitation, including the reference to "base station," "mobile station," and "cellular mobile radio system," requires the use of traditional cellular systems using and components using "time division multiple access" (TDMA) modulation. In fact, as Ericsson is well aware, on February 2, 1990, Ericsson informed the PTO that "applicant respectfully submits that TDMA is utilized. The base station transmits digitally modulated radio signals to different mobile stations in time multiplex."

In contrast, the QPE Accused Products are handsets generally compliant with the IS-95A standard for CDMA, which is incorporated herein by reference. The IS-95A standard does not use TDMA modulation, but uses a spread-spectrum, CDMA modulation. The documents produced in this litigation show that QPE's Accused Products do not use TDMA modulation, but rather use CDMA techniques. Ericsson's own internal documents also demonstrate this fact, which Ericsson apparently now concedes is true.

2. None of the QPE Accused Products function within a mobile radio system having:

[S]aid cells and base stations being associated with one another in a manner such that at least two base station transmitters are assigned to each of predetermined cells within a limited geographic area said at least two base station transmitters being disposed at a predetermined transmitting distance from each other and each operable to transmit segments of digitally modulated radio signals virtually simultaneously and within the same frequency range with identical message information being transmitted by the other of said at least two base station transmitters to mobile stations within a cell to which both of said transmitters are assigned.

This limitation requires the presence of an “extra” base station transmitter for certain cells, although other cells have only one base station transmitter. As the patent discusses it, an extra base station transmitter does not need to differ technically from an ordinary base station transmitter. Consequently, a given cell or extra base station transmitter can have technical equipment of the same type as an ordinary base station transmitter for the same cell.

As described by the patent, the extra base station transmitters can also function in the same way as the ordinary ones. If there are two identical base station transmitters for a given cell, in certain cases either of them may be respectively regarded as ordinary or extra. The extra base station transmitter or transmitters for a given cell transmit radio signals which are substantially the same as those sent by the ordinary base station transmitter of the cell.

QPE does not believe that any of the QPE Accused Products have ever functioned or are functioning today within mobile radio systems having “at least two base station transmitters . . . assigned to each of predetermined cells.” Rather, the QPE Accused Products practice CDMA technology in systems generally compliant with the IS-95A standard, which makes no such “assignment” of multiple base station transmitters to any one cell. In fact, as the term “cell” is often used in the context of an IS-95A compliant system, a “base station” and “cell” are synonymous, such that only one base station corresponds with each cell. QPE is not aware of any definition or “assignment” in an IS-95A compliant system under which more than one base station transmitter would be “assigned” to a single cell. QPE is not aware of any system that (1) “assigns” more than one “base station transmitter” (or anything that could be construed to be a “base station transmitter”) to a single cell, and (2) is compatible with the QPE Accused Products.

Ericsson has in the past incorrectly contended that IS-95A compliant systems somehow meet this claim during “soft handoff.” However, as Ericsson is fully aware, and as the PTO has

found, this limitation excludes *all* types of handoff, including the “soft handoff” process that can take place in IS-95A compliant systems. Ericsson should refer to the Examiner’s Office Action Summary in the Reissue Proceedings currently underway regarding the ‘108 patent, dated March 3, 1998, in which the Examiner rejected all claims that, unlike claim 1, “call for handover of a mobile station between base stations that cannot be found in the specification.”

3. None of the QPE Accused Products function within a mobile radio system having “said at least two base station transmitters being disposed at a predetermined transmitting distance from each other” as required by the claim. The claim requires the distance between two base station transmitters assigned to one cell to be “predetermined” to meet the following relationship between what the patent calls the “modulation time interval” and the “propagation time”:

[The] modulation time intervals . . . are shorter than the time required for radio signals to propagate a distance which is as long as a greatest transmitting distance between two base station transmitters assigned to one cell within said geographic area.

QPE is not aware of any party who, in the process of making, using, or selling an IS-95A compliant system, performed any such “predetermination” that the distance between IS-95A compliant base stations should bear such a relationship to any of the parameters that Ericsson may now contend is equivalent to the “modulation time interval.” Ericsson has not explained whether it contends the “modulation time interval” is related to the chip length or some other parameter. Regardless of the position that Ericsson finally adopts, QPE believes base stations are placed by considering a variety of other factors, such as traffic, terrain, capacity, and propagation losses.

4. None of the QPE Accused Products operate in systems in which:

each of said plurality of base stations and mobile stations hav[e] associated therewith a respective set of a transmitter and a receiver so that said message information in the form of radio signals with digital modulation can be communicated therebetween, said radio signals being digitally modulated with said message information within modulation time intervals.

“Digital modulation,” as defined in the patent, refers to TDMA modulation. In fact, as Ericsson is well aware, on February 2, 1990, Ericsson informed the PTO that “applicant respectfully submits that TDMA is utilized. The base station transmits digitally modulated radio signals to different mobile stations in time multiplex.” The QPE Accused Products are handsets generally compliant with the IS-95A standard for CDMA, which is incorporated herein by reference. The QPE Accused Products are not capable of receiving or sending TDMA signals. QPE is not aware of any system in which the QPE Accused Products operate that has transmitters or receivers capable of sending or receiving TDMA radio signals. The IS-95A standard does not use TDMA modulation, but uses a spread-spectrum, CDMA modulation.

5. None of the QPE Accused products have “reconstructing means associated with each of said receivers in said plurality of mobile stations [operating] to reconstruct digital modulation of corresponding radio signals received during a reception time interval which is at least as long as a time required for radio signals to propagate a distance which is as long as said greatest transmitting distance” as required by the claim. This limitation refers to the adaptive equalizers allegedly disclosed by the ‘108 patent, which the QPE Accused Products do not have. TDMA systems, unlike the CDMA systems in which the QPE Accused Products operate, include mobile radios having adaptive equalizers which the radios use to receive multiple signals. Nowhere does the ‘108 patent disclose an invention applicable to other types of mobile radios, which do not have adaptive equalizers or their equivalent. See Col. 2:56-59 (“The mobile stations have adaptive equalizers for reconstructing the digital modulation in the transmitted

signals from the signals received during a reception time interval.”) (emphasis supplied); Col 6:24; Col. 7:36; Col. 9:11, 17, 21, 26, 28, 37. Nothing in the specification suggests, much less enables, any method or system with mobile radios having any “receiver” other than adaptive equalizers and their equivalents.

Furthermore, during the prosecution of the ‘108 patent, the applicant explained what it considered the invention to be:

Applicant respectfully submits that the unique features of the instant invention are the particular manner in which the diversity transmission from the base stations and the equalizer at the mobile stations are adapted to each other. This adaptation relates specifically to the modulation time of the radio signals transmitted, the maximum radio signal propagation time between the base station transmitters in a particular area, and the reception time interval of the equalizer associated with the mobile station.

Response to First Office Action (2/20/90) (emphasis supplied).

In contrast, the QPE Accused Products use multiple independent demodulating elements. An equalizer – which the ‘108 patent discloses -- is meant to improve performance of a receiver in a multipath environment, where each path is a time-shifted or delayed version of the same signal. An equalizer cannot process multiple different digital signals, for example, where the signals are differentiated by frequency or by code. In contrast, receivers with multiple independent demodulating elements used in the QPE Accused Products *can* process different digital signals differentiated by code.

The documents produced to Ericsson in this litigation show that QPE’s Accused Products do not use equalizers. QPE is not aware of one single document suggesting that QPE’s Accused Products use equalizers, and Ericsson has refused to explain why it apparently believes QPE’s Accused Products use equalizers.

6. None of the QPE Accused Products “reconstruct[] the digital modulation from corresponding radio signals received within a predetermined reception time interval.” As

discussed above, the QPE Accused Products neither have equalizers nor operate with digital radio signals of the type required by the claim. In addition, the QPE Accused Products have nothing that satisfies the limitation of the “predetermined reception time interval.” According to the ‘108 patent, the “reception time interval” is “predetermined” as follows:

The mobile stations in a system in accordance with the invention have equalizers which are dimensioned such that the reception time interval of the mobile station in reconstruction of the digital modulation is greater than the time it takes for signals to propagate a distance as long as the greatest distance between two base station transmitters associated with the same cell within a restricted geographical area.

QPE’s ability to answer this interrogatory is hindered by Ericsson’s refusal to explain what it thinks meets the “reception time interval.” QPE’s best guess is that Ericsson mistakenly believes that the “search windows” described by the IS-95A somehow fulfil this limitation. However, the search windows as described by IS-95A are not “dimensioned” according to a distance “as long as the greatest distance between two base station transmitters associated with the same cell within a restricted geographical area,” because no two base stations are assigned to a single cell in an IS-95A compliant system. Thus, no such “greatest distance” exists in an IS-95A compliant system.

The “search windows” prescribed by IS-95A may vary during any given call. Specifically, rather than be “predetermined” according to some distance between base stations, the search windows in an IS-95A compliant system may vary anywhere from 4 PN chips to 452 PN chips. Numerous documents produced to Ericsson describe the search windows, and the IS-95A standard discusses it as well. If Ericsson explains its infringement contentions and proclaims that something else is the “reception time interval,” QPE will be able to supplement its answer further.

7. None of the QPE Accused Products operate in a system in which two base stations send “segments of digitally modulated radio signals virtually simultaneously and within the same frequency range with identical message information” as required by the claim. This is at least because none of the QPE Accused Products receive substantially the same message information from more than one base station during the time required by the claim.

At present, QPE must guess at how Ericsson thinks that QPE’s Accused Products meet this limitation, but in the past, Ericsson has incorrectly contended that IS-95A compliant systems meet this limitation during “soft handoff.” However, no two base stations send “substantially the same message information” to a single handset during soft handoff in IS-95A compliant systems. The Forward CDMA Channel in systems designed to be compliant with IS-95A—which is the CDMA channel from a base station to mobile stations—consists of the Pilot Channel, up to one Sync Channel, up to seven Paging Channels, and a number of Forward Traffic Channels. In general, these channels are orthogonally spread by the appropriate Walsh function. One of sixty-four time orthogonal Walsh functions is used. The channels are then spread by a quadrature pair of PN sequences at a fixed chip rate of 1.2288 Mcps (million chips/sec). Each base station uses a different time offset of the pilot PN sequence to identify a forward CDMA channel, and the I and Q channel pilot PN sequences for the Forward Traffic Channel use the same pilot PN sequence offset as the Pilot Channel for a given base station. Thus, in IS-95A compliant systems, no two base stations use the same modulation or send “substantially the same message information” to a single handset.

QPE is unaware of any contention by Ericsson QPE’s Accused Products meet this limitation other than during soft handoff. If Ericsson does believe that QPE’s Accused Products meet this limitation at any other time, it should identify the circumstances and provide an

explanation as required by QPE's Interrogatories, so that QPE may supplement this response accordingly.

As QPE does not make, use, or sell IS-95A compliant infrastructure, the facts supporting this answer can be found in IS-95A itself, and the infrastructure source code and other documents produced to Ericsson in the parallel Marshall litigation.

8. None of the QPE Accused Products operate in a system in which base station transmitters send signals "having modulation time intervals which are shorter than the time required for radio signals to propagate a distance which is as long as a greatest transmitting distance between two base station transmitters assigned to one cell within said geographic area" as required by the claim. This is at least because no such transmitting distance exists in any system in which the QPE Accused Products operate, because no two base station transmitters are "assigned" to a cell in such systems. Because no such base stations exist in an IS-95A compliant system, it is impossible to measure the distance between them, much less compare them with any modulation parameter in an IS-95A compliant system. Furthermore, the "modulation" referred to be this element relates to TDMA technology. The QPE Accused Products practice CDMA technology, and do not use the TDMA modulation required by this element of the claim.

As QPE does not make, use, or sell IS-95A compliant infrastructure, the facts supporting this answer can be found in documents produced to Ericsson by infrastructure manufacturers, IS-95A itself, and the infrastructure source code and other documents in Ericsson's possession.

Patent No. 5,109,528 (Claim 4)

1. QPE does not infringe the claim 4 of the '528 patent because none of the QPE

Accused Products satisfies the requirement of:

a mobile radio communication system comprising base stations and mobile stations having radio transmitters and radio receivers for transmitting control information and message information therebetween.

This limitation, including the reference to "base station," "mobile station," and "mobile radio system," requires the use of traditional cellular systems using and components using "time division multiple access" (TDMA) modulation.

In contrast, the QPE Accused Products are handsets generally compliant with the IS-95A standard for CDMA, which is incorporated herein by reference. The IS-95A standard does not use TDMA modulation, but uses a spread-spectrum, CDMA modulation. The documents produced in this litigation show that QPE's Accused Products do not use TDMA modulation, but rather use CDMA techniques. Ericsson's own internal documents also demonstrate this fact, which Ericsson apparently now concedes is true.

2. None of the QPE Accused Products function within a mobile radio system practicing:

a method for handing over the responsibility for transmitting message information to a mobile station from at least one first base station transmitter to at least one second base station transmitter comprising the steps of:

starting the transmission of message information to the mobile station from the second base station transmitter before terminating the transmission of message information to the mobile station from the first base station transmitter; and

transmitting substantially the same message information during a transition period from both the first base station transmitter and the second base station transmitter.

None of the QPE Accused Products receive substantially the same message information from more than one base station during the time required by the claim. Ericsson has incorrectly

contended that IS-95A compliant systems meet this limitation during “soft handoff.” However, no two base stations send “substantially the same message information” to a single handset during soft handoff in IS-95A compliant systems. The Forward CDMA Channel in systems designed to be compliant with IS-95A—which is the CDMA channel from a base station to mobile stations—consists of the Pilot Channel, up to one Sync Channel, up to seven Paging Channels, and a number of Forward Traffic Channels. In general, these channels are orthogonally spread by the appropriate Walsh function. One of sixty-four time orthogonal Walsh functions is used. The channels are then spread by a quadrature pair of PN sequences at a fixed chip rate of 1.2288 Mcps (million chips/sec). Each base station uses a different time offset of the pilot PN sequence to identify a forward CDMA channel, and the I and Q channel pilot PN sequences for the Forward Traffic Channel use the same pilot PN sequence offset as the Pilot Channel for a given base station. Thus, in IS-95A compliant systems, no two base stations use the same modulation or send “substantially the same message information” to a single handset.

As QPE does not make, use, or sell IS-95A compliant infrastructure, the facts supporting this answer can be found in documents produced to Ericsson, IS-95A itself, and the infrastructure source code and other documents produced to Ericsson in the parallel Marshall litigation.

Patent No. 5,327,577 (Claim 7)

1. QPE does not infringe the claim 7 of the '577 patent because none of the QPE Accused Products satisfies the requirement of:

a cellular mobile radio system having a plurality of base station transmitters and mobile stations.

This limitation, including the reference to "base station," "mobile station," and "mobile radio system," requires the use of traditional cellular systems using and components using "time division multiple access" (TDMA) modulation.

In contrast, the QPE Accused Products are handsets generally compliant with the IS-95A standard for CDMA, which is incorporated herein by reference. The IS-95A standard does not use TDMA modulation, but uses a spread-spectrum, CDMA modulation. The documents produced in this litigation show that QPE's Accused Products do not use TDMA modulation, but rather use CDMA techniques. Ericsson's own internal documents also demonstrate this fact, which Ericsson apparently now concedes is true.

2. None of the QPE Accused Products function within a mobile radio system practicing:

transmitting, from a first base station transmitter to a mobile station, radio signals digitally modulated with message information to the mobile station; transmitting, from a second base station transmitter to the mobile station, radio signals digitally modulated with substantially the same message information to the mobile station; and before terminating the transmission from the first or second base station transmitter of the digitally modulated radio signals to the mobile station, beginning to transmit from a third base station transmitter radio signals digitally modulated with substantially the same message information as the signals from the first and second base station transmitters.

None of the QPE Accused Products receive substantially the same message information from more than one base station during the time required by the claim. Ericsson has incorrectly contended that IS-95A compliant systems meet this limitation during "soft handoff." However,

no two base stations send “substantially the same message information” to a single handset during soft handoff in IS-95A compliant systems. The Forward CDMA Channel in systems designed to be compliant with IS-95A—which is the CDMA channel from a base station to mobile stations—consists of the Pilot Channel, up to one Sync Channel, up to seven Paging Channels, and a number of Forward Traffic Channels. In general, these channels are orthogonally spread by the appropriate Walsh function. One of sixty-four time orthogonal Walsh functions is used. The channels are then spread by a quadrature pair of PN sequences at a fixed chip rate of 1.2288 Mcps (million chips/sec). Each base station uses a different time offset of the pilot PN sequence to identify a forward CDMA channel, and the I and Q channel pilot PN sequences for the Forward Traffic Channel use the same pilot PN sequence offset as the Pilot Channel for a given base station. Thus, in IS-95A compliant systems, no two base stations use the same modulation or send “substantially the same message information” to a single handset.

As QPE does not make, use, or sell IS-95A compliant infrastructure, the facts supporting this answer can be found in documents produced to Ericsson, IS-95A itself, and the infrastructure source code and other documents produced to Ericsson in the parallel Marshall litigation.

Patent 5,088,108 (Claim 1)

1. QPE incorporates by reference all of its responses to Interrogatory No. 4 and incorporates by reference its supplemental response to Interrogatory No. 1. In light of those two responses, it is clear that Ericsson cannot assert a claim scope that reads on the QPE Accused Products unless entire claim elements are ignored, the prosecution history is ignored, and the validity of the claims is ignored.

2. QPE has explained that it does not infringe the claim 1 of the '108 patent because none of the QPE Accused Products satisfies the requirement of:

A cellular mobile radio system comprising a plurality of mobile stations which are movable within and between a plurality of cells and a plurality of associated base stations assigned to said cells for digital transmission of message information.

This limitation, including the reference to “base station,” “mobile station,” and “cellular mobile radio system,” requires the use of traditional cellular systems using and components using “time division multiple access” (TDMA) modulation. In fact, as Ericsson is well aware, on February 2, 1990, Ericsson informed the PTO that “applicant respectfully submits that TDMA is utilized. The base station transmits digitally modulated radio signals to different mobile stations in time multiplex.”

In contrast, the QPE Accused Products are handsets generally compliant with the IS-95A standard for CDMA, which is incorporated herein by reference. The IS-95A standard does not use TDMA modulation, but uses a spread-spectrum, CDMA modulation. An IS-95A compliant system does not perform the same function as the '108 patent, because it does not use diversity transmission with two base stations assigned to a single cell. It does not perform the alleged function in the same way with the same result, because it does not use: (1) TDMA modulation,

(2) equalizers, (3) the “predetermined” calculations required by the patent, (4) the “modulation time interval,” (5) “reception time interval,” and (6) receiving “means” required by the claim.

3. None of the QPE Accused Products function within a mobile radio system having:

[S]aid cells and base stations being associated with one another in a manner such that at least two base station transmitters are assigned to each of predetermined cells within a limited geographic area said at least two base station transmitters being disposed at a predetermined transmitting distance from each other and each operable to transmit segments of digitally modulated radio signals virtually simultaneously and within the same frequency range with identical message information being transmitted by the other of said at least two base station transmitters to mobile stations within a cell to which both of said transmitters are assigned.

This limitation requires the presence of an “extra” base station transmitter for certain cells, although other cells have only one base station transmitter. As the patent discusses it, an extra base station transmitter does not need to differ technically from an ordinary base station transmitter. Consequently, a given cell or extra base station transmitter can thus have technical equipment of the same type as an ordinary base station transmitter for the same cell.

As described by the patent, the extra base station transmitters can also function in the same way as the ordinary ones. If there are two identical base station transmitters for a given cell, in certain cases either of them may be respectively regarded as ordinary or extra. The extra base station transmitter or transmitters for a given cell transmit radio signals which are substantially the same as those sent by the ordinary base station transmitter of the cell.

QPE does not believe that any of the QPE Accused Products have ever functioned or are functioning today within mobile radio systems having “at least two base station transmitters . . . assigned to each of predetermined cells.” Rather, the QPE Accused Products practice CDMA technology in systems generally compliant with the IS-95A standard, which makes no such “assignment” of multiple base station transmitters to any one cell.

Ericsson has in the past incorrectly contended that IS-95A compliant systems somehow meet this claim during “soft handoff.” However, as Ericsson is fully aware, and as the PTO has found, this limitation excludes *all* types of handoff, including the “soft handoff” process that can take place in IS-95A compliant systems. Ericsson should refer to the Examiner’s Office Action Summary in the Reissue Proceedings currently underway regarding the ‘108 patent, dated March 3, 1998, in which the Examiner rejected all claims that, unlike claim 1, “call for handover of a mobile station between base stations that cannot be found in the specification.”

Ericsson is fully aware that “soft-handoff” is not the function performed by the alleged invention. The ‘108 patent discloses only a purported invention for communicating between a mobile stations and two base station transmitters, where each base station transmitter is assigned to the same cell. The invention purports to address the following problem: “In mobile radio systems there are problems due to reflections and radio shadows from natural obstacles such as rocks and hills, as well as structures such as buildings.” Col. 2:12-15. The ‘108 patent stated that one could ensure greater coverage simply by reducing cell size: “Up to now attempts have been made to solve these problems by having adaptive equalizers in the mobile stations and small cells with specially selected positioning of the base station transmitters.” Col. 2:21-25. However, the ‘108 patent also stated that reducing cell size would require more “handovers” from one base station transmitter to another as the mobile moved from cell to cell: “Another complication resulting from the reduction of cell size to below what is necessary for reasons of capacity is that the number of handovers increases.” Col. 2:31-34.

Rather than explain how a mobile station could simultaneously communicate with base station transmitters assigned to different cells, as is the case during handover, the ‘108 patent

purported to disclose an invention that would avoid handovers by assigning two base station transmitters to a single cell:

Somewhat simplified, it may be said that according to the present invention at least two base station transmitters are utilized for each of a plurality of cells, these transmitters being at a distance from each other at least partially simultaneously transmitting radio signals within the same frequency range digitally modulated with the same message information to the mobile stations in the cell.

Col. 2:45-52. Thus, the '108 patent stated: "The coverage degree can be made greater without the cell size needing to be reduced, which give[s] greater freedom in the selection of cell plan[ning] and a lesser number of handovers." Col. 3:63-67 (emphasis supplied). Absolutely nothing in the specification disclosed how a mobile station could communicate simultaneously with base stations transmitters of adjacent cells, as in a handoff. In fact, the entire written description, including all of the figures, discloses an invention for communication between one mobile station and two base stations "associated" with or "assigned" to only the same, single cell. The disclosure does not explain how one skilled in the art could use the alleged invention for communication between a mobile station and base station transmitters assigned to different, adjacent cells. Thus, the QPE Accused Products do not perform the same function in the same way with the same result as the claim.

4. QPE has not performed a further doctrine of equivalents analysis to date. Of course, in light of the absence of entire claim elements in the QPE Accused Products, QPE cannot infringe the Ericsson patents-in-suit under the doctrine of equivalents since the doctrine of equivalents cannot operate to eliminate claim elements in their entirety. *See Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 117 S. Ct. 1040, 1048-49, 1050 (1997). Furthermore, as detailed in the thousands of documents produced by QPE in this case (and the thousands of documents produced by Qualcomm in the Marshall litigation), QPE's CDMA technology

performs substantially different functions in substantially different ways to achieve substantially different results compared to the processes and devices claimed in the '108 patent. Accordingly, the QPE Accused Products cannot infringe under the doctrine of equivalents. *See Engel Indus., Inc. v. Lockformer Co.*, 96 F.3d 1398, 1408 (Fed. Cir. 1996).

INTERROGATORY NO. 3:

For each claim of each of the Ericsson Patents in Suit which QPE contends is invalid under 35 U.S.C. §§ 101, 102, or 112, as pleaded in part by QPE in Paragraph 15 of its Answer (Restated) and Paragraph 4 of QPE's Amended Declaratory Judgment Counterclaim, state each and every fact supporting the grounds for such pleadings and identify all prior art supporting these contentions.

SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 3:

In addition to QPE's General Objections, QPE objects to this interrogatory on the grounds that it is overbroad and unduly burdensome. Ericsson to date has identified only one claim of each patent in suit as allegedly infringed by QPE. Thus, this interrogatory needlessly requires QPE to address a large number of claims that Ericsson has not placed in issue. Moreover, the information sought by this interrogatory is premature. This is because, inter alia, the validity or invalidity of a patent claim or element of a claim depends upon the interpretation that is afforded such claim or claim element. Thus, the invalidity analyses sought are tentative and incomplete in that they do not have the benefit of the final claim interpretations by the Court or the benefit of Ericsson's alleged claim interpretations due to Ericsson's refusal to furnish such interpretations. Furthermore, Ericsson has failed to produce evidence of conception of the alleged inventions or evidence of diligence in reducing the alleged inventions to practice. Consequently, without such production, QPE cannot at present fix the dates that are relevant in determining the scope and content of the prior art—a necessary prerequisite for establishing invalidity under certain provisions of section 102. In addition, QPE's validity investigations are ongoing and QPE is continuing to receive and evaluate additional prior art that may be relevant to the invalidity or unenforceability of the patent claims in issue. Finally, QPE's ability to

establish its best mode defenses under section 112 are dependent on Ericsson's compliance with orders compelling Ericsson to produce its CDMA and TDMA source code—orders that Ericsson is refusing to comply with while such orders are being appealed.

Subject to QPE's general and specific objections, and subject to QPE's reservation of the right to supplement and modify its responses as additional information and analysis is conducted, QPE will provide such information responsive to this interrogatory as has been tentatively determined to date, with respect to those claims which Ericsson has expressly identified in its responses to QPE's first set of interrogatories. Accordingly, QPE reserves the right to add additional invalidity arguments, whether based on prior art or based on the failure of the patents to comply with section 112, should Ericsson identify additional claims allegedly infringed by the QPE Accused Products. Based upon information currently available, QPE incorporates its prior responses and supplements its responses as follows:

Patent 5,109,528 (Claim 4) and Patent 5,327,577 (Claim 7):

1. Under a proper claim interpretation, the QPE Accused Products do not infringe the '528 or '577 patents. QPE must necessarily guess at Ericsson's claim interpretation in order to respond to this interrogatory. As best as QPE can decipher Ericsson's claim construction, Ericsson is now claiming that these patents cover any "handoff" or "handover" in which multiple base stations transmit simultaneously to a single mobile station. Such a claim construction is erroneous, QPE believes, because it ignores the limitations set forth in QPE's response to Interrogatory No. 1. Moreover, as Ericsson is well aware, such a claim construction would render the claims invalid in light of the prior art—indeed, Ericsson has filed reissue applications for the patents because, Ericsson admits, they are invalid in light of the prior art.

2. QPE has already informed Ericsson of U.S. Patent No. 4,112,257, issued a decade before Ericsson supposedly "invented" the concept of simultaneous transmission during

handover. The '257 patent discusses a system in which, just prior to the transfer of communications, the voice channel in both directions is activated. Thus, for a period of time the same transmission is present from both base stations, yet this is the very method that Ericsson appears to claim.

3. Ericsson has also been made aware of U.S. Patent No. 4,698,839. The '839 patent discloses a system that uses a conventional conference circuit at the central office. According to the '839 patent, the conventional conference circuit allows voice information to be transferred between the other part and the mobile station through both cell sites. Thus, as the '839 patent states, continuity during handoff is maintained.

4. Ericsson is also already aware of U.S. Patent No. 4,856,048. The '048 patent discusses a handover system in which the radio channel is switched while maintaining a condition capable of communicating with a telephone through either the present radio speech channel or the new speech channel. Thus, the '048 patent states, the handover system has the advantage of limiting any interruption in communication during handover.

5. QPE has further notified Ericsson of two articles by Nakajima et al. entitled "Advanced Mobile Communication Network Based on Signaling System No. 7." These articles describe how the present and new wire speech paths are multiconnected before the radio speech path is changed. Thus, once the radio channel is changed, the mobile can converse using the new base station. The mobile switch permits the mobile to use not only the first base station but also the new base station at the same time.

6. QPE has not yet performed a detailed analysis of every single prior art reference, and is unable to determine which prior art references it will use until Ericsson identifies how it construes the claim. Indeed, Ericsson has forced QPE to conduct prior art searches based on

QPE's "best guess" of Ericsson's claim construction and infringement positions, and QPE will undoubtedly find it necessary to search for and analyze additional prior art once Ericsson provides its claim construction.

QPE has already specifically identified the following prior art as supporting its invalidity defenses regarding claim 4 of the '528 patent and claim 7 of the '577 patent: U.S. Patent Nos. 4,596,042, 4,697,260, 4,718,081, 4,723,266, 4,737,978, 4,759,051 and 4,955,082, as well as Japanese Patent Abstract, Vol. 9, No. 169 (E-328), EPO Application No. 0274857, and two articles by Berhardt entitled "User Access in Portable Radio Systems" and "RF Performance of Macroscopic Diversity in Universal Digital Portable Radio Communications." Although QPE cannot provide a detailed analysis until Ericsson provides its claim construction, QPE believes that this prior art discloses systems that expressly or inherently practice the claims that Ericsson is now attempting to assert against QPE

As of the date of these responses, QPE and Qualcomm (in a parallel, first-filed action in Marshall, Texas) have asked Ericsson to explain its claim interpretation so that QPE and Qualcomm may understand Ericsson's allegations, focus on the areas of disagreement, and refine and narrow the noninfringement and invalidity disputes. Unfortunately, Ericsson has refused to explain what its duplicative lawsuits are about, in spite Court orders compelling it do so in the Marshall litigation.

QPE will supplement its analysis and will then provide a more detailed explanation of how Ericsson's interpretation would render the asserted claim invalid in light of this prior art once Ericsson provides a claim interpretation. In addition, once Ericsson commits to a claim interpretation, QPE may be able to identify additional prior art that invalidates the claim, at least as Ericsson construes it.

7. Nothing in the specification or drawings supports Ericsson's apparent interpretation that the claims of the '528 and '577 patents cover spread spectrum technology, much less code-division multiple access ("CDMA") technology. QPE has scrutinized the specification and drawings and is unable to find any disclosure whatsoever supporting Ericsson's apparent interpretation or mentioning CDMA systems and methods. Thus, to the extent that Ericsson is successful in convincing the Court that the claims should be interpreted as covering CDMA systems, the written description appears to be inadequate under section 112 since there is no written description of a method for practicing CDMA or spread spectrum technology. Furthermore, Ericsson's undisclosed, but apparently broad interpretation would render the claims invalid under section 112 for failure to claim what the applicant regards as his invention, as the scope that Ericsson apparently now espouses is impossibly broad. QPE will be able to further supplement this portion of the interrogatory once Ericsson provides discovery. Unfortunately, Ericsson has refused to allow QPE to take depositions of its inventors, and has unilaterally refused to participate in any further disclosure of any information that Ericsson believes to be "Confidential" in either this case or the Marshall case.

Patent 5,088,108 (Claim 1)

1. Under a proper claim interpretation, the QPE Accused Products do not infringe the '108 patent. Indeed, as properly construed, the '108 claims do not read on the QPE Accused Products, the IS-95 standard, or any CDMA method or system, as discussed in QPE's responses to Interrogatory No. 1. Should the Court adopt QPE's claim interpretation, QPE need not go forward with its invalidity allegations.

2. QPE's invalidity analysis is tentative because it must guess at Ericsson's proposed claim construction. Ericsson has made several statements to the effect that it believes that the only limitation of the claim involves a relationship between a modulation parameter—which Ericsson calls the “modulation time interval”—and the distance between base station transmitters in the system. Indeed, Ericsson has attempted to ignore numerous claim limitations in its effort to read this claim on IS-95A compliant systems, as discussed in detail in QPE's response to Interrogatory No. 1. Ericsson has refused to provide its infringement analysis, but has argued, in a brief filed on April 24, 1998 with Judge Solis, that claim does not even require the use of base stations at all—an argument that flies in the face of everything in the claim, specification, and prosecution history. Ericsson does not explain how the patent discusses *anything* that does not require the use of two base stations.

3. During the '108 prosecution, Ericsson persuaded the Examiner to draw a section 112 rejection by arguing:

Applicant respectfully submits that the unique features of the instant invention are the particular manner in which the diversity transmissions from the base stations and the equalizer at the mobile stations are adapted to each other. This adaption relates specifically to the modulation time of the signals being transmitted, the maximum radio signal propagation time between the base station transmitters in a particular area, and the reception time interval of the equalizer associated with the mobile station.

Response to First Office Action (2/20/90).

Similarly, Ericsson distinguished prior art and convinced the Examiner to draw yet another rejection by emphasizing the “modulation time interval”:

The Examiner contends that the system of the reference eliminates phase differences and compensates for time delays, and that it would have been obvious for one of ordinary skill in the art to use the Yamaguchi system in the Glance system in order to eliminate the phase difference in Glance. However, neither Glance et al. or Yamaguchi et al. disclose or suggest any desirable relationship between the modulation time interval and diversity transmitter distance.

Response to First Office Action (2/20/90).

Finally, during the reissue prosecution, Ericsson again overcame a §103 rejection by emphasizing the modulation time interval:

[B]y the Examiner’s own admission, Kai et al. fail to disclose Applicant’s claimed modulation time intervals which are related to a time required for radio signals to propagate a distance corresponding to the greatest transmitting distance between two base stations associated with one cell in the system, or a reception time interval that is at least as long as the time required for radio signals to propagate a distance corresponding to the greatest transmitting distance between two base stations associated with a cell. Hence, Kai et al., considered individually, clearly fails to teach or suggest Applicant’s claimed invention.

...

The Office Action maintains that Borth provides “teaching that the modulation time interval should be related to what applicant [sic] calls delay spread and the use of an equalizer in the receiver to reconstruct these delay spread signals.” Applicants respectfully disagree with this contention. Applicants could not find any teaching or disclosure remotely suggesting or motivating Applicants’ claimed modulation time interval related to a time associated with a radio signal propagating from one or more base stations on an associated cell, nor could Applicants locate any teaching, motivation, or suggesting of the recited reception time interval . . .

. . . Applicants submit that the patent to Borth is devoid of teaching regarding Applicants’ claimed modulation time intervals and reception time intervals.

Response to Office Action (2/8/96).

4. As the preceding section discusses, Ericsson suggests that the ‘108 patent covers anything in which the modulation parameter Ericsson calls the “modulation time interval” is

taught to be less than the delay spread between two signals. Whether “base station transmitters” are used or not. Consequently, any prior art reference teaching this advantage would invalidate Ericsson’s alleged invention, at least as Ericsson now appears to interpret it. As Ericsson knows today, the prior art acknowledged the intersymbol interference that can be caused when the multipath medium delays a response from a transmitted symbol into intervals occupied by subsequent symbols, as described in the article entitled *Introduction to Spread-Spectrum Antimultipath Techniques and their Application to Urban Digital Radio*, PROCEEDINGS OF THE IEEE, Vol. 68, No. 3 (1980). That article discusses how equalization techniques that were developed for data transmission over telephone lines have been applied to the radio multipath problem. The article further discusses how this approach appears most suitable when the paths are not resolvable and when the symbol duration is much smaller than the multipath profile’s spread, yet Ericsson now apparently purports to have invented this long-known fact.

5. Ericsson’s attention is also directed to an article by Monson, entitled *Digital Transmission Performance on Fading Dispersive Diversity Channels*, IEEE TRANSACTIONS ON COMMUNICATIONS, Vol. COM-21, No. 1 (1973). That article explains how the average probability of error as a function of energy to noise ratio is solely dependent on the ratio of rms dispersion width to data symbol width. In addition, the article states that decision-feedback equalizer has small intersymbol interference penalty at a data rate exceeding the reciprocal of the rms channel dispersion.

6. Ericsson’s own publicly published papers, including “Multi-path Equalization for Digital Cellular Radio Operating at 300 KBIT/S” published in the 36th IEEE Vehicular Technology Conference in 1986, discloses what Ericsson now claims to be the “invention” covered by the claim. As Ericsson is well aware, the Raith paper taught using an equalizer in

mobile receivers to reduce intersymbol interference—which is even more than Ericsson now argues is required by the claim.

7. Depending on the extent that a Court holds that Ericsson’s alleged “invention” is the relationship between the distance between base station transmitters and modulation parameters, U.S. Patent No. 4,057,758, issued to Takeshi Hattori and Fumiyuki Adachi of Japan, may be an anticipating reference. The ‘758 patent, which issued over a decade before Ericsson’s alleged “invention,” discusses a diversity system in a mobile radio communications system provided with a multipath medium. The ‘758 patent discusses the effect of various differences in transmitter distance, and discusses how the coefficient of correlation between outputs of two antenna systems varies in accordance with a distance between two antennas, a fact that was well known long before Ericsson filed its application. The ‘758 patent further discusses that, where there is a very short distance between two antennas in comparison with the wavelength of the employed carrier wave, the outputs of the two antenna systems include fading with a high coefficient of correlation. In contrast, if the distance between two antennas exceeds one-half of the wave length of the employed carrier wave, outputs of the two antenna systems are effected with independent fading such that they have substantially no correlation.

8. Similarly, United States Patent No. 4,715,048, issued to Tatsuhiro Masamura of Tokyo, Japan, discusses that space diversity simply requires two or more signal receiving antennas spaced sufficiently apart so that their fading patterns are independent.

9. Another reference, U.S. Patent No. 4,633,519, issued to Akio Gotoh and Tuguo Ishikawa of Tokyo, Japan, discusses a diversity reception system in a portable radio apparatus, which would anticipate the “invention” that Ericsson apparently now claims. Gotoh and Ishikawa explained the well-known fact that diversity is frequently used to achieve good

communication in the presence of Rayleigh fading. The patent discusses the space diversity technique that Ericsson may now claim to have “invented,” and explains how two or more identical types of antennas spaced more than one quarter wavelength from each other receive signals which are then combined or selected to diminish the effects of the fading phenomenon.

10. The PTO correctly cited U.S. Patent No. 4,383,332, issued to Glance, as another invalidating reference. As the PTO recognized, the ‘332 patent taught using space diversity transmissions and keeping the transmissions from the base station short, as Ericsson now apparently claims. In fact, Ericsson narrowly avoided invalidity by arguing to the PTO that Glance “does not disclose the utilization of an equalizer in a mobile station.” Response to Office Action (2/20/90). Ericsson has yet to explain whether it contends that (1) QPE’s Accused Products use equalizers, or (2) the ‘108 claims do not require the use of equalizers. If Ericsson actually argues the latter, it now contradicts what it said to the PTO—and Ericsson’s claim is therefore invalid in light of Glance.

11. Ericsson’s attention has been directed to numerous other references supporting invalidity defenses to the unknown, but apparently broad, claim construction Ericsson may espouse: U.S. Patent Nos. 4,852,090, 4,490,830, U.S. Patent Nos. 4,097,804, 4,255,814, 4,516,267, 4,675,863, 4,696,051, 4,696,052, 4,718,109, 4,759,051, as well as EPO Application Nos. 40731, 72479, 72984, 274857, FRG Application No. 3022425, and Articles by Raith, Heynisch, Stjernall, and Heft cited in QPE’s supplemental responses. QPE has not yet performed a detailed analysis of each prior art reference, and is unable to determine which prior art references it will use until Ericsson identifies how it construes the claim. Indeed, Ericsson has forced QPE to conduct prior art searches based on QPE’s “best guess” of Ericsson’s claim

construction and infringement positions, and QPE will undoubtedly find it necessary to search for and analyze additional prior art once Ericsson provides its claim construction.

As of the date of these responses, QPE and Qualcomm (in a parallel, first-filed action in Marshall, Texas) have asked Ericsson to explain its claim interpretation so that QPE and Qualcomm may understand Ericsson's allegations, focus on the areas of disagreement, and refine and narrow the noninfringement and invalidity disputes. Unfortunately, Ericsson has refused to explain what its duplicative lawsuits are about, in spite Court orders compelling it do so in the Marshall litigation.

To date, QPE has been able to verify that, contrary to Ericsson's claim that it somehow "invented" the concepts of multipath and diversity, the field was crowded and well-developed long before Ericsson attempted to claim the work of others. As Ericsson is aware, the prior art discloses, either expressly or inherently, multipath signal reception and equalization in cellular systems, and Ericsson's lawyers have to date been unable to concoct a claim construction that would somehow include QPE's Accused Products yet not reclaim the prior art.

QPE will supplement its analysis and will then provide a more detailed explanation of how Ericsson's interpretation would render the asserted claim invalid in light of this prior art once Ericsson provides a claim interpretation. In addition, once Ericsson commits to a claim interpretation, QPE may be able to identify additional prior art that invalidates the claim, at least as Ericsson construes it.

12. Nothing in the specification or drawings supports Ericsson's apparent interpretation that the claims of the '108 patent cover spread spectrum technology, much less code-division multiple access ("CDMA") technology. QPE has scrutinized the specification and drawings and is unable to find any disclosure whatsoever supporting Ericsson's apparent

interpretation or mentioning CDMA systems and methods. Thus, to the extent that Ericsson is successful in convincing the Court that the claims should be interpreted as covering CDMA systems, the written description of the '108 patent appears to be inadequate under section 112 since there is no written description of a method for practicing CDMA or spread spectrum technology. Furthermore, Ericsson's undisclosed, but apparently broad interpretation would render the claims invalid under section 112 for failure to claim what the applicant regards as his invention, as the scope that Ericsson apparently now espouses is impossibly broad. QPE will be able to further supplement this portion of the interrogatory once Ericsson provides discovery. Unfortunately, Ericsson has refused to allow QPE to take depositions of its inventors, and has unilaterally refused to participate in any further disclosure of any information that Ericsson believes to be "Confidential" in either this case or the Marshall case.

As the PTO recently found, the specification is also grossly insufficient to support Ericsson's new argument that the '108 patent somehow covers the process of "handoff" in a cellular system. Ericsson should refer to the Examiner's Office Action Summary in the Reissue Proceedings currently underway regarding the '108 patent, dated March 3, 1998, in which the Examiner rejected all claims that, unlike claim 1, "call for handover of a mobile station between base stations that cannot be found in the specification."

Further defects in the specification—if Ericsson's claim interpretation is adopted—include the patent's failure disclose an invention applicable to any type of mobile radio that does not have adaptive equalizers or their equivalent. See Col. 2:56-59 ("The mobile stations have adaptive equalizers for reconstructing the digital modulation in the transmitted signals from the signals received during a reception time interval.") (emphasis supplied); Col 6:24; Col. 7:36;

Col. 9:11, 17, 21, 26, 28, 37. Nothing in the specification supports any method or system with mobile radios having any “receiver” other than adaptive equalizers and their equivalents.

Once Ericsson commits to a claim interpretation, QPE will supplement its analysis and will then provide a more detailed explanation of how Ericsson’s interpretation would render the asserted claim invalid in light of this prior art. In addition, once Ericsson commits to a claim interpretation, QPE may be able to identify additional prior art that invalidates the claim, at least as Ericsson construes it. QPE may be able to identify additional defects in the specification once Ericsson provides its claim construction.